QT-12ZS

SHARP SERVICE MANUAL

ATSM183002RCS

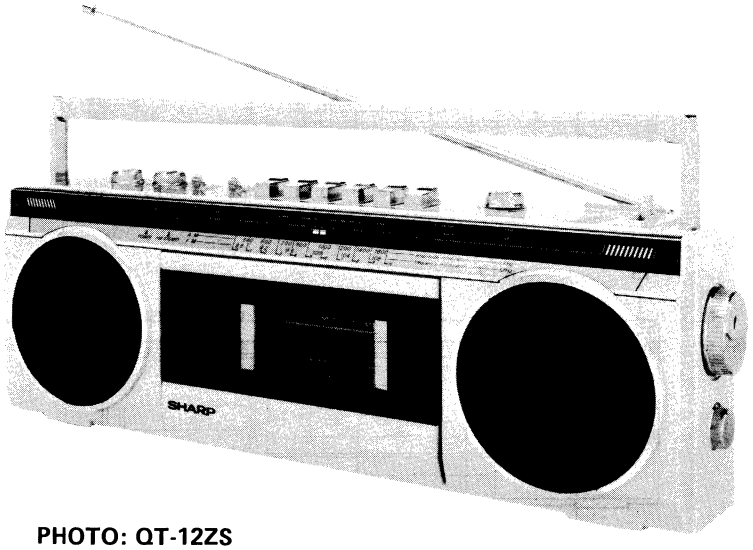


PHOTO: QT-12ZS

QT-12ZS
QT-12ZR
QT-12ZY
QT-12ZB

In the interests of user-safety the set should be restored to its original condition and only parts indentical to those specified be used.

SPECIFICATIONS

GENERAL

Power source:		AC 110V ~ 127V and 220V ~ 240V, 50/60Hz
		DC 9V (UM/SUM-2, R14, HP-11 or C type x 6)
Speakers:		9 cm (3-1/2") x 2
Output power:		PMPO; 5W + 5W (AC operation)
		MPO; 3.6W + 3.6W (AC operation)
		RMS; 2.3W + 2.3W (DC operation, 10% distortion)
Semiconductors:		5 ICs
		5 transistors
		14 diodes
		2 LEDs
Dimensions:	Width;	404 mm (16")
	Height;	136.5 mm (5-3/8")
	Depth;	79.5 mm (3-1/8")
Weight:		2.0 kg (4.5 lbs.) without batteries

TAPE RECORDER

Tape:	Compact cassette tape
Frequency response:	50Hz ~ 10,000Hz
Signal/noise ratio:	45 dB
Wow and flutter:	0.18% (WRMS)
Input impedance:	External mic; 600 ohms
Output impedance:	Headphones; 8 ~ 32 ohms

RADIO

Frequency range:	FM; 87.6 MHz ~ 108 MHz
	AM; 525 kHz ~ 1605 kHz
	SW_1; 2.3 MHz ~ 7.3 MHz
	SW_2; 7.3 MHz ~ 22 MHz

Specifications for this model are subject to change without prior notice.

SHARP CORPORATION OSAKA, JAPAN

FOR A COMPLETE DESCRIPTION OF THE OPERATION OF THIS UNIT, PLEASE REFER TO THE OPERATION MANUAL.

NAMES OF PARTS

1. FM/SW Telescopic Rod Antenna
2. Volume Control
3. Balance Control
4. Mode Selector
5. Function Selector
6. Pause Button
7. Stop/Eject Button
8. Fast-forward Button
9. Rewind Button
10. Playback Button
11. Record Button
12. Tone Control
13. Band Selector
14. Tuning Control
15. Built-in Microphone (L-ch)
16. Power Indicator
17. FM Stereo Indicator
18. Built-in Microphone (R-ch)
19. Speaker (L-ch)
20. Digital Tape Counter
21. Tape Counter Reset Button
22. Cassette Holder
23. Speaker (R-ch)
24. Fine Tuning Control
25. External Microphone Jacks
26. Battery Compartment Lid
27. Beat Cancel Switch
28. Headphones Jack
29. AC Power Supply Socket

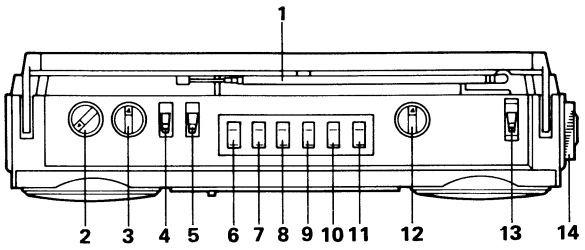


Figure 2–1

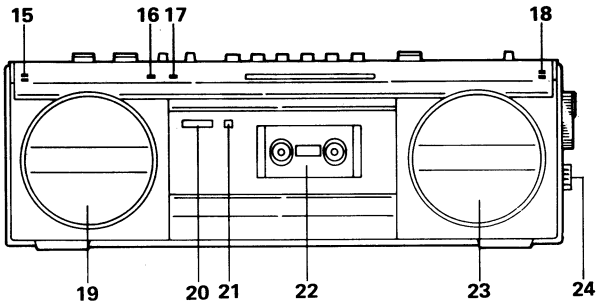


Figure 2–2

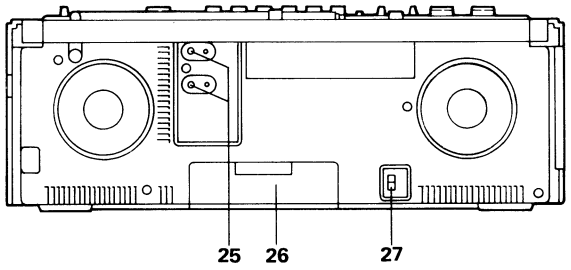


Figure 2–3

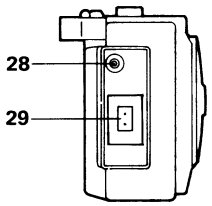


Figure 2–4

VOLTAGE SELECTION

Before operating the unit on mains, check the preset voltage. If the voltage is different from your local voltage, adjust the voltage as follows: Slide the AC power supply socket cover by a little loosing one screw to the visible indication of the side of your local voltage. See Figure 2–5.

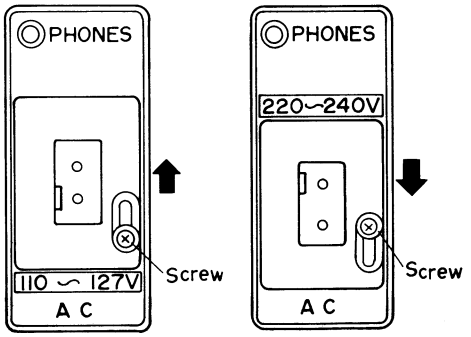


Figure 2–5

DISASSEMBLY

Caution:
Prior to the disassembly, be sure to remove the AC power supply cord, cassette tape and batteries from the unit.

A REMOVAL OF FRONT CABINET

(Refer to Figures 3–1 and 3–2.)

1. Set the mode selector switch at "Mono", function selector switch at "Tape" and band selector switch at "FM" position respectively.
2. Pull out the tuning knob, fine tuning knob, tone control knob, balance control knob and volume control knob.
3. Remove six screws from the front cabinet.
4. Raise up the handle as shown in Figure 3–2, and pull out the front cabinet by holding its both sides. At the time, disconnect the speaker socket from the audio P.W.B.

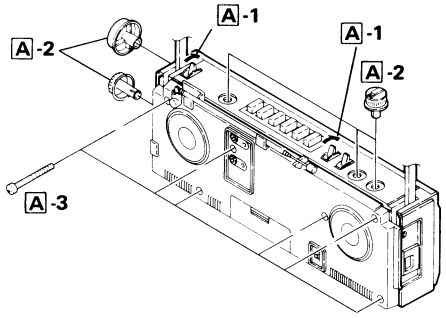


Figure 3–1

B REMOVAL OF MECHANISM BLOCK

(Refer to Figure 3–3.)

1. Remove the tape counter drive belt and mechanism leads.
2. Remove three screws from the mechanism block.
3. Disconnect the socket from the audio P.W.B. and take out the mechanism block. Then disconnect the socket from the record/playback head.

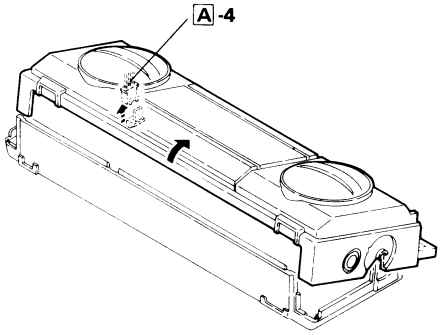


Figure 3–2

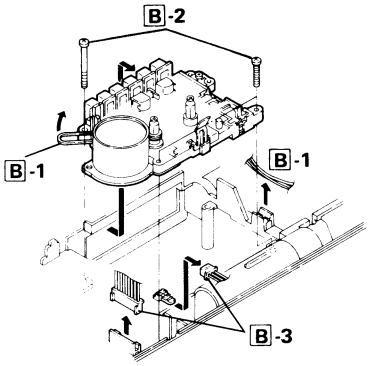


Figure 3–3

C REMOVAL OF TUNER FRAME

(Refer to Figure 3–4).

1. Detach the LED P.W.B. from the tuner frame and disconnect the socket from the audio P.W.B.
2. Remove two screws from the tuner P.W.B. Then the tuner frame can be detached together with the tuner P.W.B.

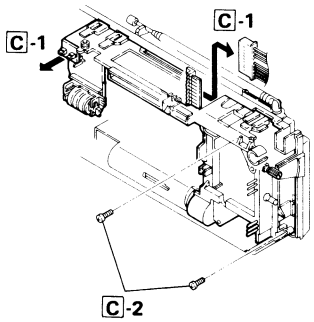


Figure 3–4

D REMOVAL OF AUDIO P.W.B.

(Refer to Figure 3–5.)

1. Disconnect the socket from the audio P.W.B. and remove the jacks P.W.B. and microphone holder from the back cabinet.
2. Remove two screws from the power transformer, one screw from the beat cancel switch and three screws from the audio P.W.B.

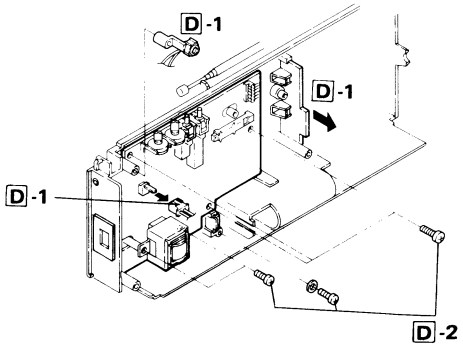


Figure 3–5

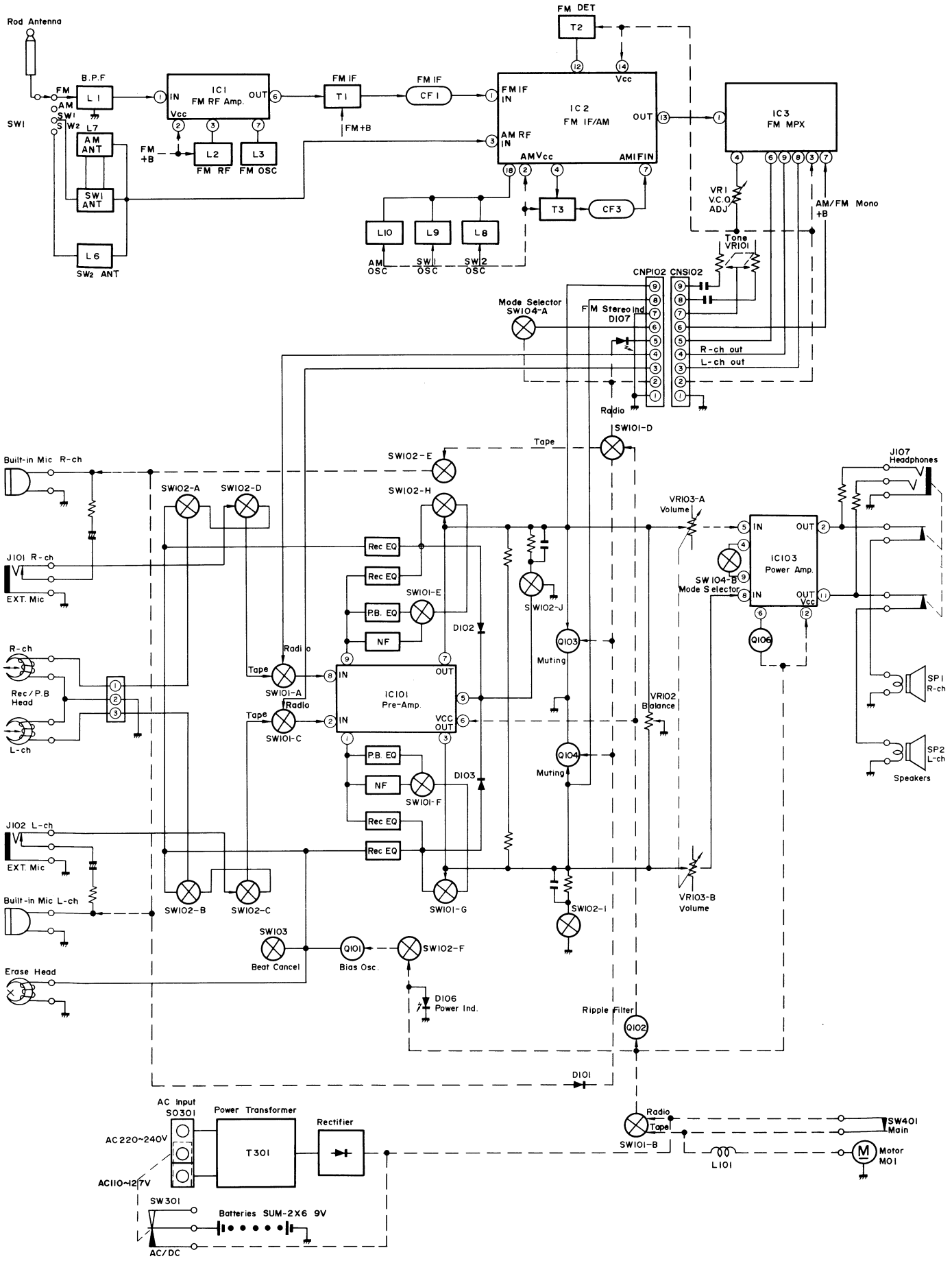


Figure 4 BLOCK DIAGRAM

MECHANICAL ADJUSTMENT

PINCH ROLLER PRESSURE CHECK

1) Place the unit in play mode.
2) Push the pinch roller, at the point (A) shown in Figure 5–1, by using a tension gauge (500 gr.) so that it will come off the capstan. Then, slowly release the tension until the pinch roller hits the capstan again (i.e., the pinch roller is about to rotate again). Check, then, the tension gauge is reading 270 gr. to 330 gr.
3) If the reading is outside the range of 270 gr. to 330 gr., bend the pinch roller spring or replace.

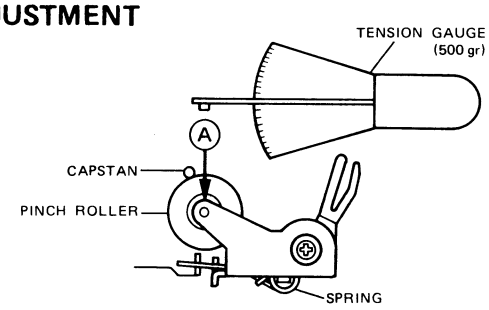


Figure 5–1

TORQUE CHECK AT PLAY, FAST FORWARD AND REWIND MODES

Put a torque meter cassette in the cassette compartment of the unit, and see that the measured torque in each mode is normal as Table 5–1.

Mode	Torque meter cassette	Measured torque
Playback	TW–2111	40 ~ 60 g-cm
Fast forward	TW–2231	85 ~ 130 g-cm
Rewind	TW–2231	85 ~ 130 g-cm

Table 5–1

RECORD/PLAYBACK HEAD AZIMUTH ADJUSTMENT

1) Make a connection of instruments as shown in Figure 5–2.
2) Set the mode selector switch at "tape" position.
3) Put a test tape (TEAC, MTT-114, 10 kHz 250 pWb/mm, −10 dB prerecorded) into the unit and play it.
4) Adjust the head azimuth adjusting screw so that the electronic voltmeter reading is maximal.

Note:
If a dual-trace oscilloscope is available, perform the adjustment so that the reading of the oscilloscope is maximal and with the least phase/output difference between channels. After the work, check that the head azimuth adjusting screw has been secured completely.

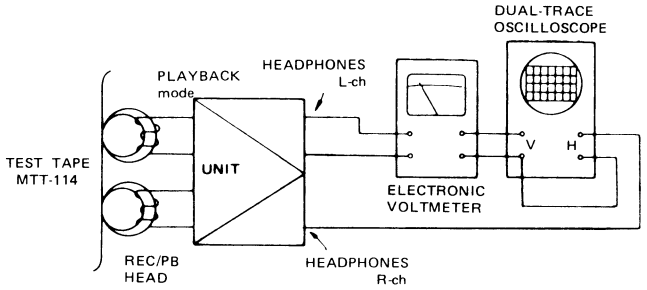


Figure 5–2

TAPE SPEED ADJUSTMENT

1) Make a connection of instruments as shown in Figure 5–3.
2) Play a test tape (TEAC, MTT-111, 3 kHz prerecorded).
3) Adjust the semi-variable resistor in the motor so that the frequency is 2965 ~ 3015 Hz on frequency counter.

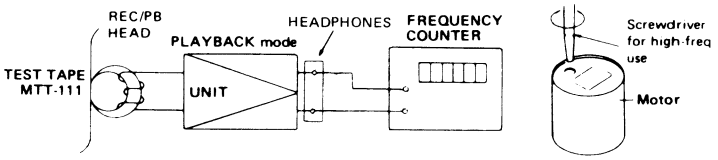


Figure 5–3

ELECTRICAL ADJUSTMENT

BIAS OSCILLATOR FREQUENCY CHECK

1) Make a connection of instruments as shown in Figure 5–4.
2) Set the function selector switch at "tape", and the beat cancel switch at "A" position.
3) Place the unit in record mode, and see that the frequency counter is reading 60 ± 3 kHz.
   Change the beat cancel switch from "A" position to "B" position, "B" position to "C" position. Then see that the frequency counter's reading is changed as shown in Table 5–2.

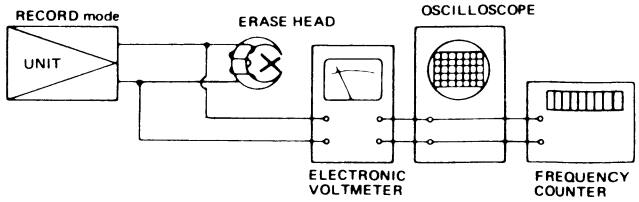


Figure 5–4

Position	A	B	C
Frequency counter's reading	60 ± 3 kHz	61 ± 3 kHz	58.5 ± 3 kHz

Table 5–2

PLAYBACK AMPLIFIER SENSITIVITY CHECK

1) Make a connection of instruments as shown in Figure 5–5.
2) Set the function selector switch at "tape", the volume control knob at "max", and the tone control knob at "high" position.
3) Playback a test tape (TEAC, MTT-118, 1 kHz, 250 pWb/mm, −10 dB prerecorded).
4) See that the electronic voltmeter is reading about 1.2V.

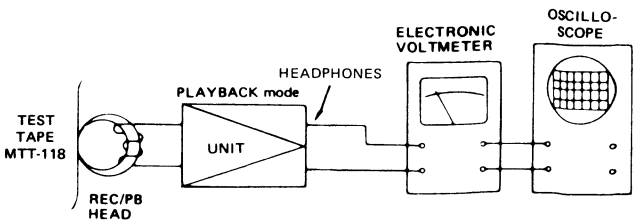


Figure 5–5

GENERAL ADJUSTMENT INSTRUCTION

Should it become necessary at any time to check the adjustment of this receiver, proceed as follows;

1. Set the volume control (VR103) to maximum.
2. Attenuate the signals from the generator enough to swing the most sensitive range of the output meter.
3. Use a non-metallic adjustment tool.
4. Repeat adjustments to insure good results.
5. Set the function selector switch (SW101) to "radio" position.

AM IF/RF ADJUSTMENT

- Set the signal generator to produce a signal of 400Hz, 30%, AM modulated.
- For adjustments in steps 4 and 9, see Note A .

STEP	BAND	TEST STAGE	FREQUENCY	DIAL SETTING	ADJUSTMENT	REMARKS
IF (Connect instruments as shown in Fig. 6–1.)						
1	AM	IF	455kHz	High end of dial	T3	Adjust for best "IF" curve
RF (Connect instruments as shown in Fig. 6–2.)						
2	AM	Band coverage	510kHz	Low end of dial	L10	Adjust for maximum output
3	AM		1650 kHz	High end of dial	TC8	
4	AM	Tracking	600kHz	600 kHz	L7	
5	AM		1400 kHz	1400 kHz	TC5	
6	Repeat steps 2,3,4 and 5 until no further improvement can be made.					
RF (Connect instruments as shown in Fig. 6–3.)						
7	SW_1	Band coverage	2.25 MHz	Low end of dial	L9	Adjust for maximum output
8	SW_1		7.4MHz	High end of dial	TC7	
9	SW_1	Tracking	2.6MHz	2.6MHz	L7	
10	SW_1		6.0MHz	6.0 MHz	TC4	
11	Repeat steps 7,8,9 and 10 until no further improvement can be made.					
12	SW_2	Band coverage	7.2MHz	Low end of dial	L8	Adjust for maximum output
13	SW_2		22.5 MHz	High end of dial	TC6	
14	SW_2	Tracking	8.5MHz	8.5 MHz	L6	
15	SW_2		19MHz	19 MHz	TC3	
16	Repeat steps 12, 13, 14 and 15 until no further improvement can be made.					

Note A

Check the adjustment of the receiver antenna coil by bringing a piece of ferrite (such as a coil slug) near the antenna loop stick, then a piece of brass. If ferrite increases output, loop requires more inductance. If brass increases output, loop requires less inductance. Change loop inductance by sliding the bobbin toward the center of ferrite core to increase inductance, or away to decrease inductance.

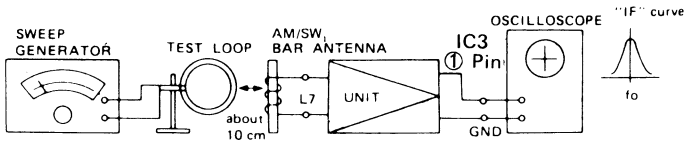


Figure 6–1

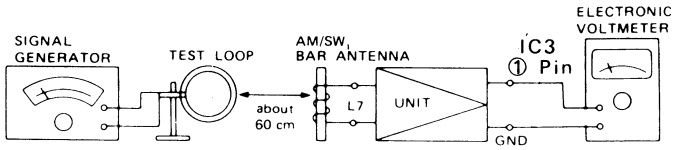


Figure 6–2

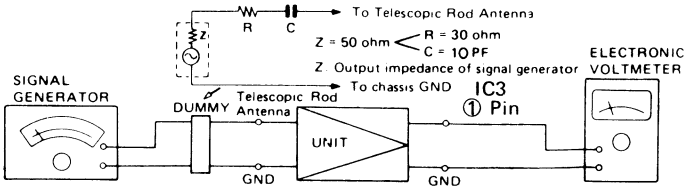


Figure 6–3

FM IF/RF ADJUSTMENT

- Set the signal generator to produce a signal of 400Hz, 30%, FM modulated.

STEP	BAND	TEST STAGE	FREQUENCY	DIAL SETTING	ADJUSTMENT	REMARKS
IF (Connect instruments as shown in Fig. 7–1.)						
1	FM	IF	10.7 MHz	High end of dial	T1 T2	Adjust for best "S" curve
RF (Connect instruments as shown in Fig. 7–2.)						
2	FM	Band coverage	87.1 MHz	Low end of dial	L3	Adjust for maximum output
3	FM		109 MHz	High end of dial	TC2	
4	FM	Tracking	88 MHz	88 MHz	L2	
5	FM		108 MHz	108 MHz	TC1	
6	Repeat steps 2,3,4 and 5 until no further improvement can be made.					

FM STEREO ADJUSTMENT

- Set the band selector switch (SW1) to "FM" position and mode selector switch (SW104) to "stereo" position.
- Before this adjustment, connect the anode side of Stereo indicator (D107) to GND.
- Connect instruments as shown in Fig. 7–3 and Fig. 7–4.

FREQUENCY	DIAL POINTER	ADJUSTMENT	REMARKS
98MHz (54dB) unmodulated	98MHz	VR1	Adjust for 38 ± 0.15kHz

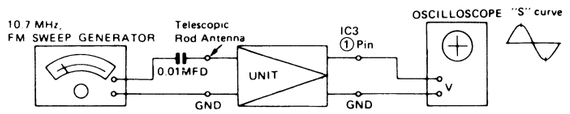


Figure 7–1

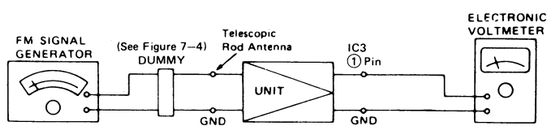


Figure 7–2

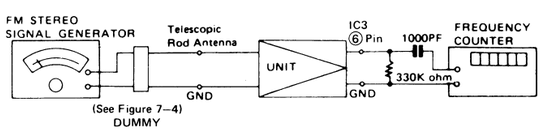


Figure 7–3

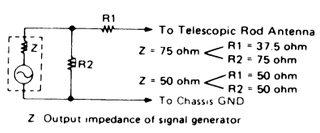
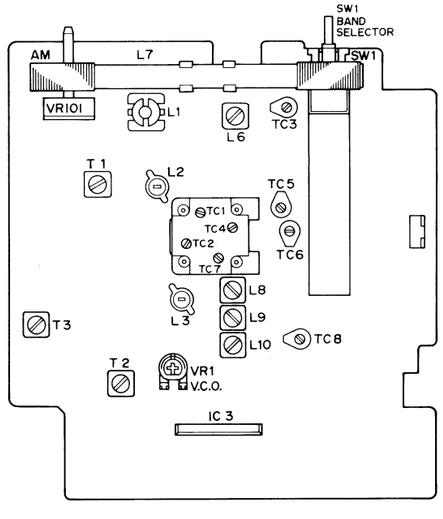


Figure 7–4 FM DUMMY

ADJUSTMENT POINTS



DIAL CORD STRINGING

1) Turn the drum fully clockwise and stretch its cord over the parts in the numerical order – as shown in Figure 8–1.
2) Turn the tuning control shaft fully counterclockwise, and fix it with the pointer aligned with the zero (0) point on the dial scale. See Figure 8–2.

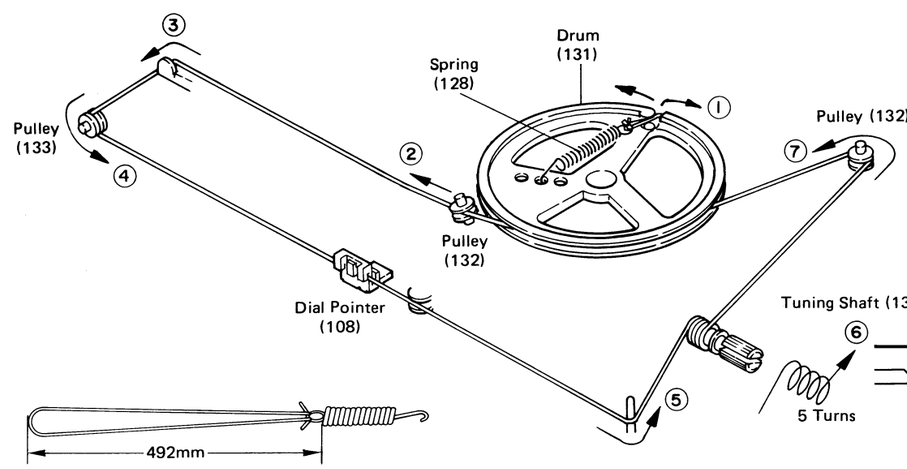


Figure 8–1

Figure 8–2

IC2 VHIAN7223//-1 (AN7223)

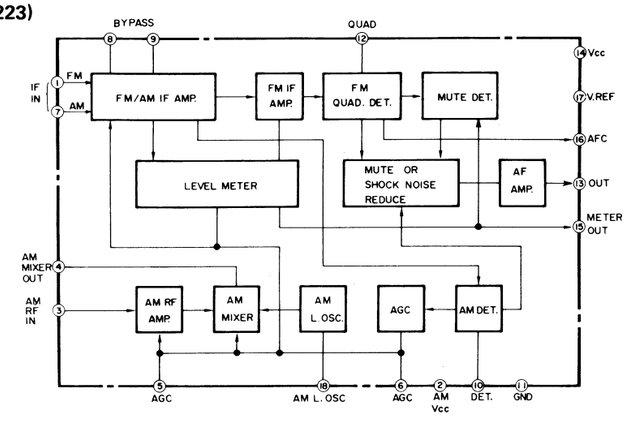
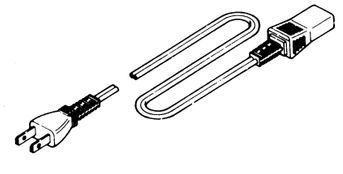


Figure 8–3 BLOCK DIAGRAMS OF INTEGRATED CIRCUIT

AC POWER SUPPLY CORD

QACCZ0051AF00



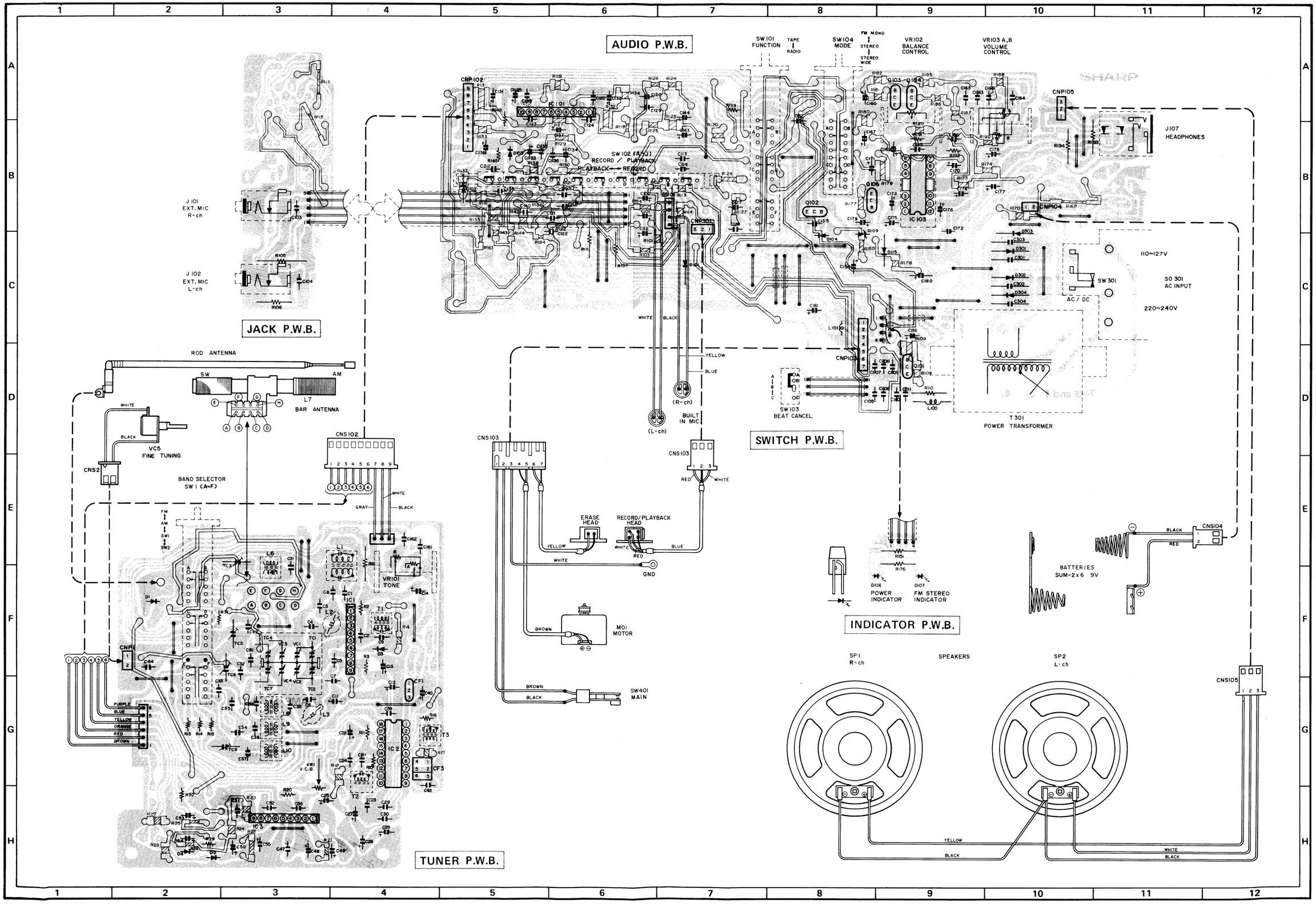


Figure 9 WIRING SIDE OF PRINTED WIRING BOARD

SW. NO.	FUNCTION	POSITION
SW1 (A~F)	BAND SELECTOR	FM – AM – SW1 – SW2
SW101 (A~F)	FUNCTION SELECTOR	TAPE – RADIO
SW102 (A~J)	RECORD / PLAYBACK	RECORD – PLAYBACK
SW103	BEAT CANCEL	A – B – C
SW104	FM MODE SELECTOR	FM MONO – STEREO – ST· WIDE
SW301	AC / DC SELECTOR	AC – DC
SW401	MAIN	ON – OFF

Note;

- Voltage reading are measured with Digital Multimeter under no signal condition in tape position.
  ( ) : AM mode
  : FM mode
- Unless otherwise specified all resistance in ohms, K = 1000 ohms
- Unless otherwise specified all capacitance in microfarads. P = Picofarads
- (CH), (RH) : Temperature compensation
- (S) : Styrol type
- (P. P) : Polypropylene type
- ⎓ : Printed resistor

* Parts marked with "⚠" (▭) are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

* Specifications or wiring diagrams of this model are subject to change for improvement without prior notice.

Figure 11 SCHEMATIC DIAGRAM

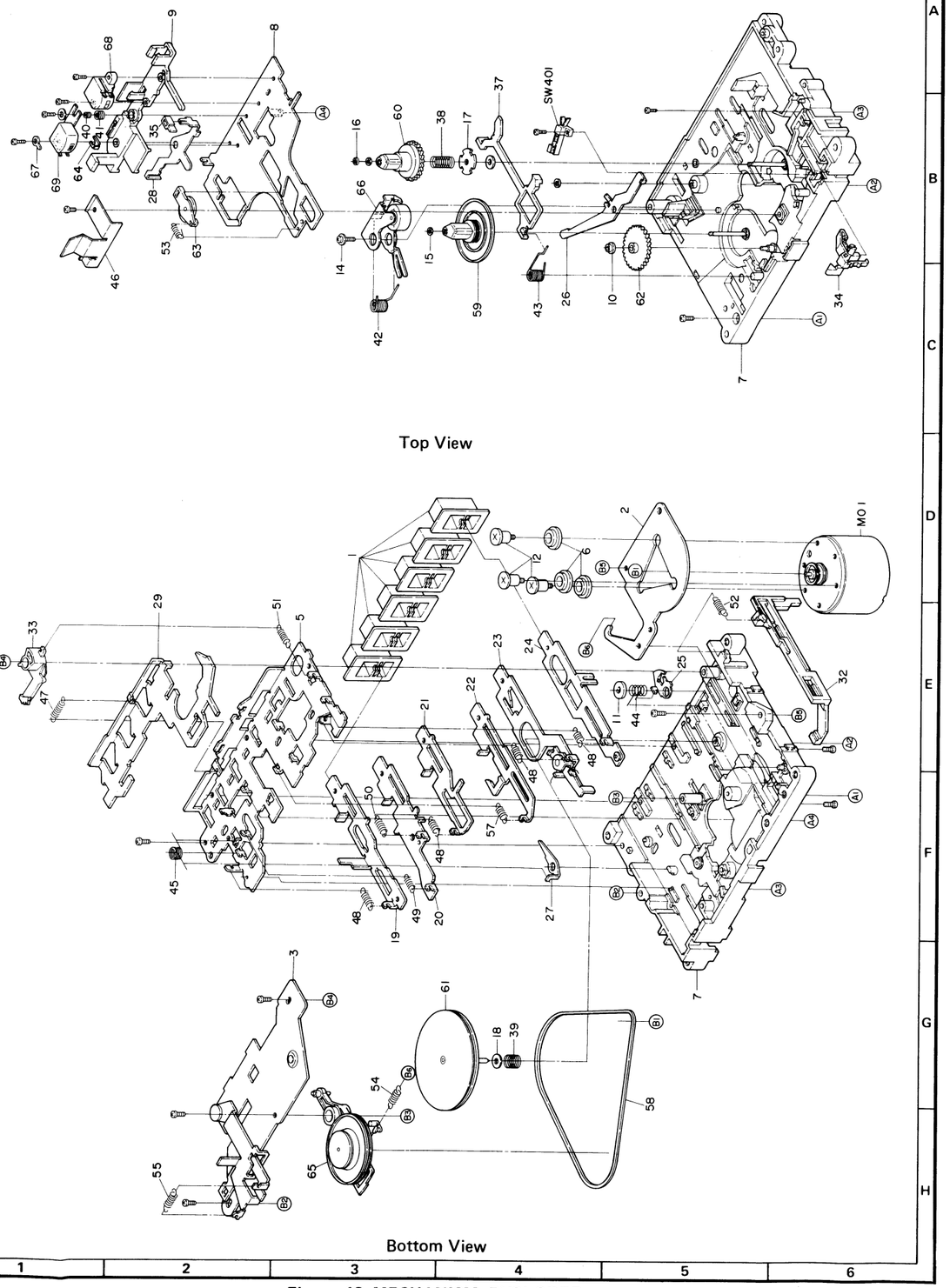


Figure 13 MECHANISM EXPLODED

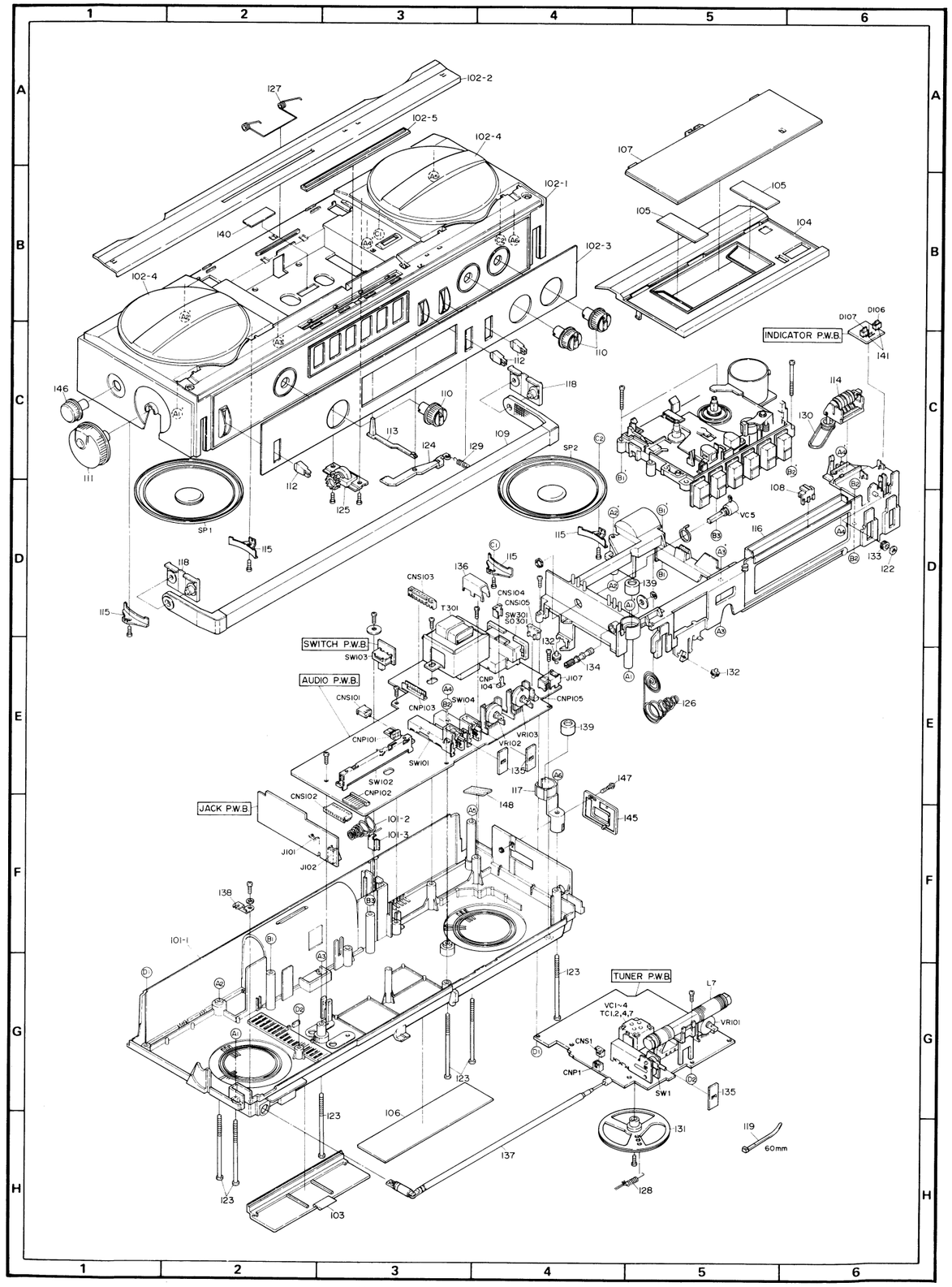


Figure 14 CABINET EXPLODED VIEW

REPLACEMENT PARTS LIST

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following information.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION

NOTES:

Parts marked with "⚠" are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

REF.NO.	PART NO	DESCRIPTION	CODE
		INTEGRATED CIRCUITS	
IC1	VHITA7335P/-1	FM RF Amp. (TA7335P)	AG
IC2	VHIAN7223//-1	FM IF/AM (Mixer, Oscillator, IF)(AN7223)	AK
IC3	VHITA7343P/-1	FM Multiplex (TA7343P)	AG
IC101	VHIM51544L/-1	Pre Amp. (M51544L)	AG
IC103	VHILA4192//-1	Power Amp. (LA4192)	AK
		TRANSISTORS	
Q101	VS2SC945AK/-1	Bias Oscillator (2SC945 AK)	AB
Q102	VS2SD655E//-1	Ripple Filter (2SD655 E)	AC
Q103,104	VS2SD655E//-1	Muting (2SD655 E)	AC
Q106	VS2SC945AP/-1	Noise Prevention (2SC945 AP)	AB
		DIODES	
D1	VHD1S2076//-1	Static Protector (1S2076)	AB
D3	VHD1S2076//-1	FM Overload (1S2076)	AB
D4,5	VHD1S2076//-1	Reverse Current Protector (1S2076)	AB
D101	VHD1S2076//-1	Reverse Current Protector (1S2076)	AB
D102	VHD1S2076//-1	ALC Control (1S2076)	AB
D103	VHD1S2076//-1	ALC Control (1S2076)	AB
D104	VHD1S2076//-1	Ripple Filter Circuit (1S2076)	AB
D106	RH-PX1029AFZZ	LED, Power Indicator (GL-9PR25)	AC
D107	RH-PX1029AFZZ	LED, FM Stereo Indicator (GL-9PR25)	AC
D109	VHEHZ6B2L//-1	Zener, 6.2V/400mW (HZ6B2L)	AB
D115	VHD1S2076//-1	Stabilizer for AC Mode (1S2076)	AB
⚠ D301,302, ⚠ D303,304	VHD10E4N///-1	Power Rectifier (10E4N)	AB
		FILTERS	
CF1	RFILF0080AFZZ	Ceramic, 10.7 MHz (FM IF)	AD
CF3	RFILA0074AFZZ	Ceramic, 455 kHz (AM IF)	AE
		TRANSFORMERS	
T1	RCILI0157AFZZ	FM IF	AC
T2	RCILI0312AFZZ	FM Detector	AC
T3	RCILI0310AFZZ	AM IF	AC
⚠ T301	RTRNP0925AFZZ	Power	AQ
		COILS	
L1	RCILA0455AFZZ	FM Band Pass Filter	AC
L2	RCILB0672AFZZ	FM RF	AC
L3	RCILB0628AFZZ	FM Oscillator	AC
L6	RCILA0556AFZZ	SW_2 Antenna	AD
L7	RCILA0614AFZZ	Bar Antenna, AM/SW_1	AH
L8	RCILB0625AFZZ	SW_2 Oscillator	AC
L9	RCILB0624AFZZ	SW_1 Oscillator	AC
L10	RCILB0623AFZZ	AM Oscillator	AC
L100	VP-CH561K0000	Bias Oscillator, 560μH	AB
L101	VP-CU470K0000	Noise Suppressor, 47μH	AD
		CONTROLS	
VC1,2, VC3,4, TC1,2, TC4,7	RVC-R0083AFZZ	Variable Capacitors Tuning with Trimmers: TC1; FM RF Trimmer TC2; FM Oscillator Trimmer TC4; SW_1 Antenna Trimmer TC7; SW_1 Oscillator Trimmer	AN
VC5	RVC-Z0056AFZZ	Fine Tuning	AE
TC3	RTO-H1073AFZZ	SW_2 Antenna Trimmer	AC
TC5	RTO-H1073AFZZ	AM Antenna Trimmer	AC
TC6	RTO-H1073AFZZ	SW_2 Oscillator Trimmer	AC
TC8	RTO-H1073AFZZ	AM Oscillator Trimmer	AC
VR1	RVR-M0408AFZZ	V.C.O. Adjust, 10K ohm(B)	AB
VR101	RVR-A0187AFZZ	Tone Control, 50K ohm(A)	AF
VR102	RVR-Z0152AFZZ	Balance Control, 50K ohm(Z)	AD
VR103	RVR-B0269AFZZ	Volume Control, 20K ohm(B)	AG
		ELECTROLYTIC CAPACITORS (All electrolytic capacitors are ±20% type.)	
C12	RC-EZA336AF1C	33MFD, 16V	AB
C13,14, C22,25, C26	RC-EZA106AF1C	10MFD, 16V	AB
C27	RC-EZA107AF1A	100MFD, 10V	AB
C28	RC-EZA475AF1E	4.7MFD, 25V	AB
C40	RC-EZA106AF1C	10MFD, 16V	AB
C48	RC-EZA335AF1H	3.3MFD, 50V	AB
C49	RC-EZA105AF1H	1MFD, 50V	AB
C50	RC-EZA475AF1E	4.7MFD, 25V	AB
C53,54	RC-EZA105AF1H	1MFD, 50V	AB
C55	RC-EZA227AF1C	220MFD, 16V	AB
C101,102	RC-EZA334AF1H	0.33MFD, 50V	AB
C112	RC-EZA336AF1A	33MFD, 10V	AB
C116	RC-EZA107AF1C	100MFD, 16V	AB
C125	RC-EZA226AF1C	22MFD, 16V	AG
C131	RC-EZV107AF1A	100MFD, 10V	AB
C132	RC-EZA107AF1A	100MFD, 10V	AB
C133,134	RC-EZA105AF1H	1MFD, 50V	AB
C137	RC-EZV477AF1A	470MFD, 10V	AC
C138	RC-EZA476AF1A	47MFD, 10V	AB
C143,144	RC-EZA105AF1H	1MFD, 50V	AB
C156	RC-EZV337AF1C	330MFD, 16V	AC
C157	RC-EZA227AF1C	220MFD, 16V	AB
C160	RC-EZA475AF1E	4.7MFD, 25V	AB
C167	RC-EZA106AF1C	10MFD, 16V	AB
C169,170	RC-EZA107AF1A	100MFD, 10V	AB
C171	RC-EZA227AF1C	220MFD, 16V	AB
C173,174	RC-EZA107AF1A	100MFD, 10V	AB
C175,176	RC-AZ1001AFZZ	0.15MFD, 25V	AC
C177,178	RC-EZV477AF1A	470MFD, 10V	AC
C179	RC-EZA475AF1E	4.7MFD, 25V	AB
C180	RC-EZW228AF1C	2200MFD, 16V	AE
C181	RC-EZA227AF1C	220MFD, 16V	AB
		CAPACITORS (Unless otherwise specified capacitors of Semiconductor type.)	
C1	VCCSPA1HL180J	18PF, 50V, ±5%, Ceramic	AA
C2,3	VCTYPA1EX472K	0.0047MFD, 25V, ±10%	AA
C4	VCCCPA1HH220J	22PF(CH), 50V, ±5%, Ceramic	AA
C5	VCCCPA1HH330J	33PF(CH), 50V, ±5%, Ceramic	AA
C6	VCCRPA1HH220J	22PF(RH), 50V, ±5%, Ceramic	AA
C7	VCCCPA1HH4R0C	4PF(CH), 50V, ±0.25PF, Ceramic	AA
C8	VCTYPA1EX472K	0.0047MFD, 25V, ±10%	AA
C9	VCTYPA1EX103M	0.01MFD, 25V, ±20%	AA
C11,21, C23	VCTYPA1EX223M	0.022MFD, 25V, ±20%	AA
C24	VCCSPA1HL221K	220PF, 50V, ±10%, Ceramic	AA
C29,30, C31	VCTYPA1EX223M	0.022MFD, 25V, ±20%	AA
C32	VCCCPA1HH8R2C	8.2PF(CH), 50V, ±0.25PF, Ceramic	AA
C33	VCTYPA1EX472K	0.0047MFD, 25V, ±10%	AA
C34	VCTYPA1EX152K	0.0015MFD, 25V, ±10%	AA
C35	VCCSPA1HL361J	360PF, 50V, ±5%, Ceramic	AA
C36	VCCCPA1HH100D	10PF(CH), 50V, ±0.5PF, Ceramic	AB
C37	VCCCPA1HH120J	12PF(CH), 50V, ±5%, Ceramic	AB
C38,39	VCTYPA1EX223M	0.022MFD, 25V, ±20%	AA
C42	VCCSPA1HL470J	47PF, 50V, ±5%, Ceramic	AA
C44	VCTYPA1EX223M	0.022MFD, 25V, ±20%	AA
C47	VCQSMA1HL102J	0.001MFD, 50V, ±5%, Styrol	AB
C51,52, C56	VCTYPA1EX223M	0.022MFD, 25V, ±20%	AA
C58	VCCCPV1HH6R0C	6PF(CH), 50V, ±0.25PF, Ceramic	AA
C61	VCCSPA1HL2R0C	2PF, 50V, ±0.25PF Ceramic	AA
C62	VCCCPA1HH4R0C	4PF(CH), 50V, ±0.25PF, Ceramic	AA
C103,104	VCTYPA1EX103J	0.01MFD, 25V, ±5%	AA
C105	VCKYPA1HB681K	680PF, 50V, ±10%, Ceramic	AA
C106	VCKYPA1HB271K	270PF, 50V, ±10%, Ceramic	AA
C107,108	VCCSPU1HL181J	180PF, 50V, ±5%, Ceramic	AA
C109	VCTYPA1EX563K	0.056MFD, 25V, ±10%	AB
C110	VCQPKA2AA682J	0.0068MFD, 100V, ±5%, Polypropylene	AB
C111	VCTYPA1EX823K	0.082MFD, 25V, ±10%	AB
C113,114	VCTYPA1EX102K	0.001MFD, 25V, ±10%	AA
C117,118, C119,120	VCTYPA1EX122K	0.0012MFD, 25V, ±10%	AB
C121,122	VCKYPA1HB681K	680PF, 50V, ±10%, Ceramic	AA
C123,124	VCCSPA1HL221J	220PF, 50V, ±5%, Ceramic	AA
C127,128	VCTYPA1EX123K	0.012MFD, 25V, ±10%	AA
C129,130	VCKYPA1HB681K	680PF, 50V, ±10%, Ceramic	AA
C135,136	VCTYPA1EX562K	0.0056MFD, 25V, ±10%	AA
C139,140	VCTYPA1EX823K	0.082MFD, 25V, ±10%	AB
C155	VCTYPA1EX123K	0.012MFD, 25V, ±10%	AA
C161,162	VCTYPA1EX393K	0.039MFD, 25V, ±10%	AA
C163,164	VCTYPA1EX562K	0.0056MFD, 25V, ±10%	AA
C165,166, C172	VCTYPA1EX104K	0.1MFD, 25V, ±10%	AB
C185,186, C212	VCTYPA1EX102K	0.001MFD, 25V, ±10%	AA
C301,302, C303,304	VCKYAT1HB102K	0.001MFD, 50V, ±10%, Ceramic	AA
		RESISTORS (All resistors are 1/4W, ±5%, Carbon type.)	
R2	VRD-SU2EE681J	680 ohm	AA
R3	VRD-SU2EE564J	560K ohm	AA
R6	VRD-ST2EE221J	220 ohm	AA
R10	VRD-SU2EE222J	2.2K ohm	AA
R11	VRD-SU2EE680J	68 ohm	AA
R13,14	VRD-SU2EE330J	33 ohm	AA
R15	VRD-SU2EE470J	47 ohm	AA
R16	VRD-SU2EE100J	10 ohm	AA
R20	VRD-SU2EE682J	6.8K ohm	AA
R29	VRD-SU2EE331J	330 ohm	AA
R30	VRD-SU2EE471J	470 ohm	AA
R31	VRD-SU2EE101J	100 ohm	AA
R105,106	VRD-ST2EE332J	3.3K ohm	AA
R107	VRD-ST2EE102J	1K ohm	AA
R110	VRD-ST2EE100J	10 ohm	AA
R111	VRD-ST2EE270J	27 ohm	AA
R145	VRD-SU2EE824J	820K ohm	AA
R148	VRD-SU2EE101J	100 ohm	AA
R151	VRD-ST2EE122J	1.2K ohm	AA
R176	VRD-ST2EE102J	1K ohm	AA
R191,192	VRD-SU2EE820J	82 ohm	AA
R193,194	VRD-ST2EE101J	100 ohm	AA
R199	VRD-SU2EE330J	33 ohm	AA
		OTHER CIRCUITRY PARTS	
CNP1	QCNCM462BAFZZ	Plug, 2-Pin	AA
CNP101	QCNCM284CAFZZ	Plug, 3-Pin	AF
CNP102	QCNCM329JAFZZ	Plug, 9-Pin	AE
CNP103	QCNCM403GAFZZ	Plug, 7-Pin	AB
CNP104	QCNCM095BAFZZ	Plug, 2-Pin	AB
CNP105	QCNCM136CAFZZ	Plug, 3-Pin	AB
CNS1	CCNCW334BAF05	Socket, 2-Pin with Wire Leads	AB
CNS101	QCNW-1781AFZZ	Socket, 3-Pin with Wire Leads	AE
CNS102	QCNW-1881AFZZ	Socket, 9-Pin with Wire Leads	AH
CNS103	QCNW-1782AFZZ	Socket, 7-Pin with Wire Leads	AH
CNS104	QCNW-1880AFZZ	Socket, 2-Pin with Wire Leads	AC
CNS105	QCNW-1879AFZZ	Socket, 3-Pin with Wire Leads	AF
BI101	QCNW-1882AFZZ	Board in Plug, 4-Pin with Wire Leads Built-in Microphone	AB

REF.NO.	PART NO	DESCRIPTION	CODE
J101,102	QJAKE0108AFZZ	External Microphone Jack	AC
J107	QJAKJ0114AFZZ	Headphones Jack	AG
MO1	RMOTV0133AF02	Motor, with Pulley	AW
⚠ SO301	QSOCE0595AFZZ	Socket, AC/DC Power Supply(with AC/DC Selector Switch)	AG
SP1,2	VSP0090P-10SA	Speakers	AP
SW1-A~F	QSW-B0176AFZZ	Switch, Band Selector	AM
SW101-A~F	QSW-B0174AFZZ	Switch, Function Selector	AG
SW102-A~J	QSW-S0386AFZZ	Switch, Record/Playback	AG
SW103	QSW-S0267AFZZ	Switch, Beat Cancel	AD
SW104	QSW-B0177AFZZ	Switch, Mode Selector	AF
SW301	Not Available	Switch, Socket, AC/DC Power Supply Part of SO301	—
SW401	QSW-F0182AFZZ	Switch, Main	AC

MECHANICAL PARTS

1	JKNBR0220AFSA	Button, Operation	AC
2	LANGF0766AFFW	Bracket, Motor	AC
3	LANGF0817AFZZ	Flywheel Bracket Assembly	AF
5	LANGG0109AFZZ	Bracket, Operation Lever	AE
6	LBSHZ0086AFZZ	Cushion, Motor	AA
7	LCHSM0427AFZZ	Main Chassis	—
8	LCHSS0185AFFW	Sub-chassis	—
9	LDAIH0061AFZZ	Head Base	AB
10	LRTNP0053AFZZ	Retaining Ring, Fast Forward Gear	AA
11	LRTNP0054AFZZ	Retaining Ring, Pause Lock Lever	AA
12	LX-BZ0451AFFD	Screw, Motor Retaining	AA
14	LX-HZ0056AFFD	Screw, Pinch Roller	AA
15	LX-WZ9064AFZZ	Washer, 1.5mm Dia. ×4mm Dia.×0.5mm	AA
16	LX-WZ1070AFZZ	Washer, 1.5mm Dia. × 0.25mm	AA
17	LX-WZ9083AFZZ	Washer, Back Tension	AA
18	LX-WZ9084AFZZ	Washer, Flywheel	AA
19	MLEVF1456AFFW	Lever, Record	AB
20	MLEVF1457AFFW	Lever, Playback	AB
21	MLEVF1458AFFW	Lever, Rewind	AB
22	MLEVF1459AFFW	Lever, Fast Forward	AB
23	MLEVF1460AFZZ	Lever Assembly, Stop/ Eject	AD
24	MLEVF1462AFZZ	Lever, Pause	AC
25	MLEVF1465AFFW	Lever, Pause Lock	AA
26	MLEVF1466AFFW	Lever, Playback Idler Release	AB
27	MLEVF1467AFFW	Lever, Record Prevention	AA
28	MLEVF1468AFFW	Lever, Sensor	AB
29	MLEVF1469AFFW	Lever, Lock	AD
32	MLEVP0430AFZZ	Lever, Cassette Holder Eject	AB
33	MLEVP0431AFZZ	Lever, Lock Release	AB
34	MLEVP0432AFZZ	Lever, Erase Prevention	AA
35	MLEVP0433AFZZ	Chip, Sensor	AA
37	MLEVP0435AFZZ	Lever, Brake	AA
38	MSPRC0378AFFJ	Spring, Back Tension	AA
39	MSPRC0379AFFJ	Spring, Flywheel	AA
40	MSPRC0380AFFJ	Spring, Head Azimuth Adjust (Inside)	AA
41	MSPRC0381AFFJ	Spring, Head Azimuth Adjust (Outside)	AA
42	MSPRD0488AFFJ	Spring, Pinch Roller	AA
43	MSPRD0489AFFJ	Spring, Brake	AA
44	MSPRD0490AFFJ	Spring, Pause Lock Lever	AA
45	MSPRD0491AFFJ	Spring, Record Prevention Lever	AA
46	MSPRP0349AFFJ	Spring, Cassette Hold Down	AA
47	MSPRT0976AFFJ	Spring, Lock Plate	AA
48	MSPRT0977AFFJ	Spring, Operation Lever	AA
49	MSPRT0978AFFJ	Spring, Playback Lever	AA
50	MSPRT0979AFFJ	Spring, Over Stroke	AA
51	MSPRT0980AFFJ	Spring, Lock Release Lever	AA
52	MSPRT0981AFFJ	Spring, Cassette Holder Lever	AA
53	MSPRT0982AFFJ	Spring, Playback Idler	AA
54	MSPRT0983AFFJ	Spring, Fast Forward/ Rewind Roller	AA
55	MSPRT0984AFFJ	Spring, Record Lever	AA
57	MSPRT1002AFFJ	Spring, Fast Forward Lever	AA
58	NBLTK0248AFZZ	Belt, Flywheel Drive	AC
59	NDAIR0175AFSA	Turntable, Take-up	AF
60	NDAIR0176AFSA	Turntable, Supply	AB
61	NFLYC0110AFZZ	Flywheel	AG
62	NGERH0117AFZZ	Gear, Fast Forward	AB
63	NIDR-0084AFZZ	Idler, Playback	AE
64	PSPAD0050AFFW	Spacer, Head	AA
65	NROLW0024AFZZ	Roller, Fast Forward/ Rewind Assembly	AK
66	NROLY0055AFZZ	Pinch Roller	AE
67	QHWS-2222AGFN	Lug	AA
68	RHEDA0094AFZZ	Head, Erase	AF
69	RHEDH0104AFZZ	Head, Record/Playback	AN

MISCELLANEOUS

101	CCABB1749AF01	Cabinet, Rear Assembly (QT-12ZS)(QT-12ZY)	AT
⚠ 101-1	GCABB1749AFSA	Cabinet, Rear (QT-12ZS) (QT-12ZY)	AM
101-2	MSPRC0390AFFW	Spring, Battery Terminal (−)	AB
101-3	QTANB9130AFFW	Battery Terminal (+)	AB
CNS104	QCNW-1880AFZZ	Socket, 2-Pin with Wire Leads	AC
101	CCABB1749AF03	Cabinet, Rear Assembly (QT-12ZR)	AU
⚠ 101-1	GCABB1749AFSB	Cabinet, Rear (QT-12ZR)	AP
101-2	MSPRC0390AFFW	Spring, Battery Terminal (−)	AB
101-3	QTANB9130AFFW	Battery Terminal (+)	AB
CNS104	QCNW-1880AFZZ	Socket, 2-Pin with Wire Leads	AC
101	CCABB1749AF05	Cabinet, Rear Assembly (QT-12ZB)	AU
⚠ 101-1	GCABB1749AFSC	Cabinet, Rear (QT-12ZB)	AP
101-2	MSPRC0390AFFW	Spring, Battery Terminal (−)	AB
101-3	QTANB9130AFFW	Battery Terminal (+)	AB
CNS104	QCNW-1880AFZZ	Socket, 2-Pin with Wire Leads	AC
102	GCAB-1178AFSA	Cabinet, Front Assembly (QT-12ZS)	BC
⚠ 102-1	GCABA1749AFSA	Cabinet, Front (QT-12ZS)	AW
102-2	HDALM0405AFSA	Dial Scale (QT-12ZS)	AN
102-3	HINDM1570AFSA	Ornamental Metal, Upper	AM
102-4	HPNC-0177AFSA	Punching Metal (QT-12ZS)(QT-12ZB)	AH
102-5	HPNLD1227AFSA	Window, Dial Scale	AB
102	GCAB-1178AFSB	Cabinet, Front Assembly (QT-12ZR)	BD
⚠ 102-1	GCABA1749AFSB	Cabinet, Front (QT-12ZR)	AX
102-2	HDALM0405AFSB	Dial Scale (QT-12ZR)	AN
102-3	HINDM1570AFSA	Ornamental Metal, Upper	AM
102-4	HPNC-0177AFSB	Punching Metal (QT-12ZR)(QT-12ZY)	AH
102-5	HPNLD1227AFSA	Window, Dial Scale	AB
102	GCAB-1178AFSC	Cabinet, Front Assembly (QT-12ZY)	BD
⚠ 102-1	GCABA1749AFSC	Cabinet, Front (QT-12ZY)	AX
102-2	HDALM0405AFSB	Dial Scale (QT-12ZY)	AN
102-3	HINDM1570AFSA	Ornamental Metal, Upper	AM
102-4	HPNC-0177AFSB	Punching Metal (QT-12ZY)(QT-12ZR)	AH
102-5	HPNLD1277AFSA	Window, Dial Scale	AB
102	GCAB-1178AFSD	Cabinet, Front Assembly (QT-12ZB)	BD
⚠ 102-1	GCABA1749AFSD	Cabinet, Front (QT-12ZB)	AX
102-2	HDALM0405AFSC	Dial Scale (QT-12ZB)	AN
102-3	HINDM1570AFSA	Ornamental Metal, Upper	AM
102-4	HPNC-0177AFSA	Punching Metal (QT-12ZB)(QT-12ZS)	AH
102-5	HPNLD1277AFSA	Window, Dial Scale	AB
103	GFTAB1142AFSA	Lid, Battery Compartment (QT-12ZS)(QT-12ZY)	AC
103	GFTAB1142AFSB	Lid, Battery Compartment (QT-12ZR)	AC
103	GFTAB1142AFSC	Lid, Battery Compartment (QT-12ZB)	AC
104	GFTAC1279AFSA	Cassette Holder (QT-12ZS)	AL
104	GFTAC1279AFSB	Cassette Holder (QT-12ZR)	AL
104	GFTAC1279AFSC	Cassette Holder (QT-12ZY)	AL
104	GFTAC1279AFSD	Cassette Holder (QT-12ZB)	AL
105	HDECP0091AFSA	Ornamental Metal, Cassette Holder	AA
⚠ 106	HINDP0659AFSA	Plate, Specifications (QT-12ZS)	AC
⚠ 106	HINDP0663AFSA	Plate, Specifications (QT-12ZR)	AC
⚠ 106	HINDP0664AFSA	Plate, Specifications (QT-12ZB)	AC
⚠ 106	HINDP0665AFSA	Plate, Specifications (QT-12ZY)	AC
107	HPNLZ1059AFSA	Transparent Plate, Cassette Holder (QT-12ZS)(QT-12ZB)	AK
107	HPNLZ1059AFSB	Transparent Plate, Cassette Holder (QT-12ZR)(QT-12ZY)	AK
108	HSSND0322AFSA	Pointer	AC
109	JHNDP1056AFSA	Handle (QT-12ZS)	AK
109	JHNDP1056AFSB	Handle (QT-12ZR)	AK
109	JHNDP1056AFSC	Handle (QT-12ZY)	AK
109	JHNDP1056AFSD	Handle (QT-12ZB)	AK
110	JKNBK0296AFSB	Knob, Volume/Tone/ Balance Control	AD
111	JKNBN0544AFSA	Knob, Tuning	AF
112	JKNBP0215AFSB	Knob, Lever	AD
113	JKNBZ0303AFSA	Button, Tape Counter Reset	AB
114	KCOUB0143AFZZ	Tape Counter	AK
115	LANGK0282AFZZ	Bracket, Speaker Retaining	AA
116	LHLDF1289AFZZ	Frame, Main	AF
117	LHLDF1291AFZZ	Frame, Built-in Microphone	AC
118	LHLDL1051AFZZ	Holder, Handle	AB
119	LHLDW1075AFZZ	Nylon Band, 60mm	AA
122	LSTWC2403AFZZ	Stop Ring	AA
123	LX-CZ0024AFZZ	Screw, 60mm (QT-12ZS) (QT-12ZY)(QT-12ZB)	AA
123	LX-CZ0024AF00	Screw, 60mm Black (QT-12ZR)	AA
124	MLEVP0441AFZZ	Lever, Cassette Holder Lock	AB
125	MLIFP0017AFZZ	Damper, Cassette Holder	AD
126	MSPRC0391AFFW	Spring, Battery Terminal	AB
127	MSPRD0501AFFJ	Spring, Cassette Holder Up	AB
128	MSPRT0750AFFW	Spring, Dial Stringing	AA
129	MSPRT1001AFFJ	Spring, Cassette Holder Lock	AA
130	NBLTK0217AFZZ	Belt, Tape Counter Drive	AB
131	NDRM-0185AFZZ	Drum, Dial Stringing	AC
132	NPLYB0050AFZZ	Pulley, Dial Stringing	AA
133	NPLYB0052AFZZ	Pulley, Dial Stringing	AA
134	NSFTD0198AFFW	Shaft, Tuning	AC
135	PFLT-0585AF00	Cushion, Lever Knob	AA
136	PRDAR0284AFZZ	Heat Sink	AA
137	QANTR0112AFZZ	Rod Antenna	AN
138	QTANZ0171AFFW	Terminal, Rod Antenna	AA
139	RMICC0087AFZZ	Built-in Microphone	AE
140	TLABZ0241AFZZ	Mirror Plate	AA
141	PSPAS0149AFZZ	Spacer, LED	AA
145	GCOVH1187AFSC	Cover, AC Power Supply Socket (QT-12ZS) (QT-12ZY)	AC
145	GCOVH1187AFSD	Cover, AC Power Supply Socket (QT-12ZR)	AC
145	GCOVH1187AFSE	Cover, AC Power Supply Socket (QT-12ZB)	AC
146	JKNBN0533AFSA	Fine Tuning	AF
147	LX-BZ0345AFFF	Screw, AC Power Supply Socket Cover Retaining	AA
148	PSPAS0254AFZZ	Spacer	
⚠	QACCL0050AF00	Cord, AC Power Supply For Australia	AM
⚠	QACCZ0051AF00	Cord, AC Power Supply For EX	AH
	QPLGA0251AFZZ	Plug, Adaptor	AE
	SPAKA1017AFZZ	Packing Add, Right Side	AC
	SPAKA1018AFZZ	Packing Add, Left Side	AC
	SPAKC2366AFZZ	Packing Case (QT-12ZS)	AG
	SPAKC2386AFZZ	Packing Case (QT-12ZR)	AG
	SPAKC2387AFZZ	Packing Case (QT-12ZY)	AG
	SPAKC2388AFZZ	Packing Case (QT-12ZB)	AG
	SSAKA0021AFZZ	Bag, Operation Manual	AA
	SSAKH0101AFZZ	Polyethylene Bag Unit	AA
	TCAUA0178AFZZ	Caution Label, Arabic AC Power Supply Cord	AA
	TGANE1121AFZZ	Warranty Card For EX	AC
	TGANE1124AFZZ	Warranty Card For Australia	AC
	TINSZ0460AFZZ	Operation Manual	AH
	TLABZ0118AFZZ	Label, Indication: Free of Tax	AB
	TLABZ0135AFZZ	Label, Arabic	AA
	TLABZ0308AFZZ	Label, EP, For PX (QT-12ZS)(QT-12ZB) (QT-12ZY)	AA
	TLABZ0181AFZZ	Label, EP, For PX (QT-12ZR)	AA
	TLABZ0383AFZZ	Label, Special Feature	AD
	TLSTS0001ZZR0	List, Service Station Australia	—
	UBATU0010AGZZ	Battery, SUM-2	AC

P.W.B. ASSEMBLY (Not Replacement Item)

DUNTR0205AF03	Tuner Circuit	—
DKEND0349AF01 (Combined Assembly)	Audio Circuit	—

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